REMARKS

With the present response, Applicants propose to amend claims 1-6, 8-15, and 19 and to add claims 20-29. Amendments to claims 1 and 15 are supported, e.g., by paragraphs [0040]-[0043] of Applicant's published application, 2004/0101055. Applicants also correct minor grammatical errors in the specification.

It is noted that Applicant's attorney contacted the Examiner to request a copy of the Office Action filed in the parent application, 09/433,490, as the Applicant's attorney does not have a copy, and PAIR also does not include a copy. The Examiner stated that he was attempting to retrieve the copy. Applicant's attorney thanks the Examiner for this help. The Applicants have proceeded without a copy of the Office Action filed in the parent application.

Contemporaneously with the present Response, Applicants file an Information Disclosure Statement found when researching CCITT Recommendation H.261.

In the outstanding Office Action, the Examiner (1) rejected claims 1-4, 8, 9, 11, 12, and 14-18 under 35 U.S.C. §103(a) as being obvious over Pickering et al. "A statistical error detection technique for low bit-rate video" and Murphy et al., U.S. Patent No. 5,745,169; (2) rejected claim 5 under 35 U.S.C. §103(a) as being unpatentable over Pickering and Murphy in further view of Shimoda et al., U.S. Patent No. 5,703,889; (3) rejected claim 13 under 35 U.S.C. §103(a) as being unpatentable over Pickering and Murphy in further view of Murata, U.S. Patent No. 5,535,013; and (4) rejected claim 19 as being unpatentable over Pickering and Murphy in further view of Shimoda.

It is noted that Applicant incorporates by reference the previous argument made in the Second Preliminary Amendment dated 3 December 2003.

Rejection of independent claims 1 and 15

The Examiner rejects claims 1 and 15 using a combination of Pickering and Murphy. Applicant respectfully disagrees for at least the reasons given herein.

Pickering discusses two types of channel errors:

> Figure 1 shows a decoded frame of the Carphone sequence with distortion caused by channel errors. Two main types of distortion, which are typical of those observed in such sequences, can be seen in this image. They are:
>
> 1. 8x8 pixel blocks which have the wrong dc value, and
>
> 2. 8x8 pixel blocks which are dominated in appearance by a single DCT basis function.
>
> Errors of type 1 are caused by bit errors in the dc values and coded block pattern codeword of a macroblock. Errors of type 2 are caused by incorrect VLC codewords being decoded as a valid but incorrect run-level pair.

Pickering, page 774, §2. Detection of type 1 errors is discussed in section 3.1 of Pickering, and detection of type 2 errors is discussed in section 3.2 of Pickering.

It is noted that the techniques used in Pickering concern inter-frame (i.e., between frames) detection of errors, as opposed to intra-frame (i.e., within the same frame). It is noted that Pickering defines a "frame" implicitly when it states "Figure 1 shows a decoded ***frame*** of the Carphone sequence with distortion caused by channel errors". Pickering, page 774, §2 (emphasis added). For instance, section 3.1.1 of Pickering develops equations for MPED (mean edge pixel difference), which appears to use information from blocks within a frame. However, the actual error detection is inter-frame:

> The value for the MEPD standard deviation is denoted by $\sigma_{1,n}$, where $n = 1 \ldots 2$ denotes the type of block, i.e. luminance or chrominance. These values are then used for the ***following frame*** to detect any MEPD values which are greater than some integer times the standard deviation for that block type.

> That is, for each MEPD value if MEPD > $\mu_{1,N}\sigma_{1,N}$ where $\mu_{1,N}$ is an integer value to be defined later, then an error is detected and a concealment algorithm will applied to the current slice.

Pickering, page 774, §3.1.2 (emphasis added). In other words, in Pickering values for $\sigma_{1,n}$ are determined for MEPDs for a current frame and a previous frame. An error is detected if the value of the MEPD for the current frame differs by an integer value ($\mu_{1,N}$) multiplied by the MEPD for the previous frame. Therefore, an inter-frame determination of error is made in Pickering.

By contrast, amended claim 1 recites "generating, after said transformation, a second reference value representing the abruptness of variation in certain information between the block and at least one previously transformed video data block ***from a same frame as the block***" and "comparing the first reference value to a certain first threshold value and the second reference value to a certain ***predetermined*** second threshold value" (emphasis added). Applicant has therefore clarified that the second reference value uses intra-frame blocks. Thus, not only does the second reference value represent the abruptness of variation in certain information between the block and at least one previously transformed video data block ***from a same frame as the block***, but also the second reference value is compared to a certain ***predetermined*** second threshold value.

Furthermore, if $\mu_{1,N}\sigma_{1,N}$ in Pickering is considered to be a "second threshold value" as recited in claim 1 (with which Applicant does not admit), the value of $\mu_{1,N}\sigma_{1,N}$ depends on the value of the MEPD (i.e., $\sigma_{1,n}$) of a previous frame. The value of $\mu_{1,N}\sigma_{1,N}$ is therefore not predetermined, as its value depends on the value of the MEPD of a previous frame.

Because the technique in Pickering for comparing MEPD values concerns inter-frame error determination and the recited subject matter in claim 1 concerns intra-frame error determination, and because $\mu_{1,N}\sigma_{1,N}$ in Pickering is not predetermined, which the

recited subject matter in claim 1 is a certain ***predetermined*** second threshold value, Pickering does not disclose (or imply) at least the subject matter of "generating, after said transformation, a second reference value representing the abruptness of variation in certain information between the block and at least one previously transformed video data block ***from a same frame as the block***" and "comparing the first reference value to a certain first threshold value and the second reference value to a certain ***predetermined*** second threshold value" (emphasis added).

It is noted that Murphy also does not disclose or imply the subject matter of "generating, after said transformation, a second reference value representing the abruptness of variation in certain information between the block and at least one previously transformed video data block ***from a same frame as the block***" and "comparing the first reference value to a certain first threshold value and the second reference value to a certain ***predetermined*** second threshold value" (emphasis added). This is true because Murphy is not directed to error detection using transformed video data and instead performs techniques prior to transformation.

Because neither Pickering nor Murphy disclose or imply this subject matter, the combination of these references does not disclose or imply this subject matter and claim 1 is patentable over the combination. Claim 15 recites similar subject matter, as claim 15 recites the subject matter of: "means for generating, after said transformation, a second reference value representing the abruptness of variation in certain information between the block and at least one previously transformed video data block ***from a same frame as the block***" and "means for comparing the first reference value to a certain first threshold value and the second reference value to a certain ***predetermined*** second threshold value". For at least the reasons given above, claim 15 is patentable over the combination of Pickering and Murphy.

It is also noted that one skilled in the art would not combine Pickering and Murphy in the manner described by the Examiner. For instance, in section 3.2, Pickering describes another inter-frame technique for correcting errors (in this case, type 2 errors).

Meanwhile, Murphy describes intra-frame techniques. There is no disclosure or implication in Pickering that intra-frame techniques should be used for error correction. It is unclear as to why one skilled in the art would add intra-frame error determination from Murphy into the inter-frame error determination of Pickering, especially since Pickering only discloses that errors are determined and corrected on an inter-frame basis. Therefore, it is believed that one skilled in the art would not combine Pickering and Murphy in the way the Examiner postulates.

Rejections to claims 2-4, 8, 9, 11, 12, 14, and 16-18

Because independent claims 1 and 15 are patentable, dependent claims 2-4, 8, 9, 11, 12, 14, and 16-18 are patentable for at least the reasons given above with respect to claims 1 and 15.

Claim 5

Claim 5 is patentable for at least the reasons given above with respect to claim 1. Furthermore, as for Shimoda, there does not appear to be any generation of reference values depending on DCT coefficients and comparison of the threshold reference values with certain threshold values. Consequently, it appears that even if there is disclosure in Shimoda of "dividing DCT coefficients of the block into at least two parts, wherein the coefficients of the first part are associated with higher frequencies than the coefficients of the second part", there is no reason for one skilled in the art to combine Shimoda with Pickering and Murphy, as there is absolutely no (at least that Applicant can find) disclosure or implication in Shimoda that the system in Shimoda would be used for generation of reference values and comparison of the reference values with certain threshold values.

Claim 13

Claim 13 is patentable for at least the reasons given above with respect to claim 1.

Claim 19

Claim 19 is directed to "[a] method for decoding compressed video pictures, each picture having a plurality of video data blocks" and recites the subject matter of "generating a second reference value representing the abruptness of variation in DCT coefficient information or pixel value information between the block and at least one previously transformed video data block of the picture", "comparing the second reference value to a second predetermined threshold value", and "detecting an error in the video data block as a response to the second reference value being greater than the second predetermined threshold value." In the case of claim 19, intra-picture (e.g., intra-frame) error determination and correction is made using a second predetermined threshold value.

The arguments given above for claim 1 are equally appropriate here. In particular, neither Pickering nor Murphy disclose at least the subject matter of "generating a second reference value representing the abruptness of variation in DCT coefficient information or pixel value information between the block and at least one previously transformed video data block of the picture", "comparing the second reference value to a second predetermined threshold value", and "detecting an error in the video data block as a response to the second reference value being greater than the second predetermined threshold value." Because neither Pickering nor Murphy disclose or imply this subject matter, the combination of these references does not disclose or imply this subject matter and claim 19 is patentable over the combination.

As for Shimoda, there does not appear to be any disclosure or implication of generating reference values representing the abruptness of variation in DCT coefficient information or pixel value information between the block and at least one previously

transformed video data block of the picture. Therefore, the combination of Shimoda, Pickering, and Murphy does not disclose this subject matter. Furthermore, in Shimoda, there does not appear to be any generation of reference values depending on DCT coefficients and comparison of the threshold reference values with certain threshold values. Consequently, it appears that even if there is disclosure in Shimoda of "dividing DCT coefficients of the block into at least two parts, wherein the coefficients of the first part are associated with higher frequencies than the coefficients of the second part", there is no reason for one skilled in the art to combine Shimoda with Pickering and Murphy, as Shimoda does not disclose or imply that error detection would use generation of reference values representing the abruptness of variation in DCT coefficient information or pixel value information between the block and at least one previously transformed video data block of the picture. For at least these reasons, claim 19 is patentable over the alleged (i.e., improper) combination of Pickering, Murphy, and Shimoda.

New claims

Applicant has added claims 20-29, as supported by the originally filed claims, the specification, and the drawings, and in particular FIG. 10 and paragraph [0051] of the published application. Claims 20 and 25 contain subject matter similar to the subject matter in claim 1; claims 21 and 26 contain subject matter similar to the subject matter in claim 5; claims 22 and 27 contain subject matter similar to the subject matter in claim 6 prior to the amendments herein; claims 23 and 28 contain subject matter similar to the subject matter in claim 7; and claims 24 and 29 contain subject matter similar to the subject matter in claim 10 prior to the amendments herein.

For at least the reasons given above, it is submitted that the new claims are patentable over the cited references.

Conclusion

Based on the foregoing arguments, it should be apparent that claims 1-29 are thus allowable over the reference(s) cited by the Examiner, and the Examiner is respectfully requested to reconsider and remove the rejections. The Examiner is invited to call the undersigned attorney for any issues.

Respectfully submitted:

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